

DataBatic



DATA CENTER

AIR/AIR SYSTEMS FOR DATA CENTERS WITH ADIABATIC SYSTEM

10-330 kW

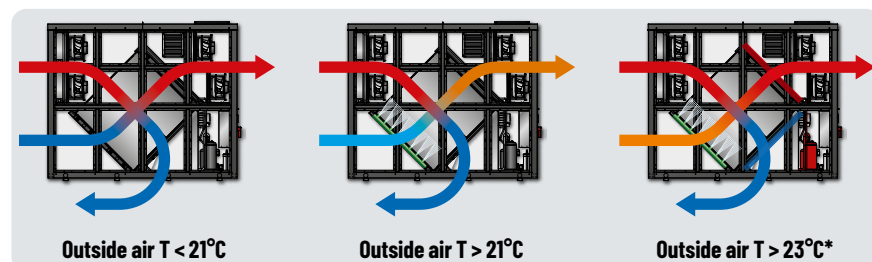


The combination of the evaporative cooling system with the air/air cross-flow exchanger of the HDB-DataBatic range **extends indirect Free-Cooling for more hours during the year and more climate zones**. The reduction, and in some cases cessation, of mechanical operation has two benefits: **it reduces operating costs for greater annual energy efficiency** (reduced PUE) and **reduces deployment costs, thanks to the lower installed power**. HDB units can accommodate the “cooling circuit” option, and are **entirely factory assembled** in a **monobloc solution** to **facilitate installation operations**.

- Possibility of managing multiple units in parallel in the same system
- High efficiency through-flow heat exchanger with epoxy surface treatment for protection against corrosion (Eurovent certification)
- Management of overpressure in the air distribution plenum (ΔP Control)
- Side and front access to all components, even when units are operational, to make maintenance easier and avoid system downtime situations
- Panelling developed and assembled in accordance with standard UNI 1886
- Air renewal kit with modulating dampers (Fresh air kit)
- Ultrasonic humidifier
- Kit for applications at low outdoor air temperatures (up to -40°C)

Direct expansion or chilled water integration

If external climatic conditions cannot satisfy internal load requirements using only indirect Free-Cooling + Evaporative Cooling, the mechanical cooling system comes into play. There is thus the option of a cooling circuit with **BLDC modulating compressors specific for R410A**, **electronically controlled expansion valve** and **hydrophilically treated fin evaporator**. Alternatively, a chilled water coil can be installed, to be connected to an external chiller.



* Wet bulb condition for a 1 MW Data Center (Redundancy N + 1) in Amsterdam at 36°C -25%; Delivery air $T 24^{\circ}\text{C}$; Max T of air delivery 26°C



Plug type fans with EC motor

EC type ventilation on both air flows provides:

- higher efficiency at partial loads;
 - reduced noise emissions;
 - precise tracking of thermal load variations.
- Fan consumption, in the "hot swappable" configuration, can be displayed in real time on the machine's display

Evaporative cooling on the air flow from the outside

HDB - DataBatic units are equipped with **Evaporative Cooling technology**, based on the use of nozzles that spray water onto the air flow coming from outside. Evaporating water cools the air due to an adiabatic effect, the air then passes the cross-flow exchanger at a temperature close to the wet bulb temperature, **extending the period of time in which it is possible to exploit the Free-Cooling effect**. Finally, the system is of the **multistep type** in respect of the air flow, in order to **optimize saturation efficiency**.

Indirect Air-Side Free-Cooling

Indirect Air-Side Free-cooling Indirect Free-Cooling, as opposed to direct:

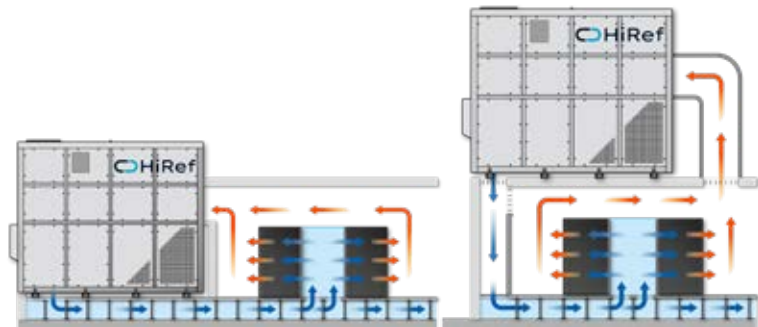
- does not create contamination between the indoor air of the Data Center and outdoor air;
- blocks the entry of dust and pollutants into the Data Center without the need for additional filtering;
- there is no latent load increase.
- The result is **a clear reduction in energy consumption for system management**.

Water saving function and legionella-free system

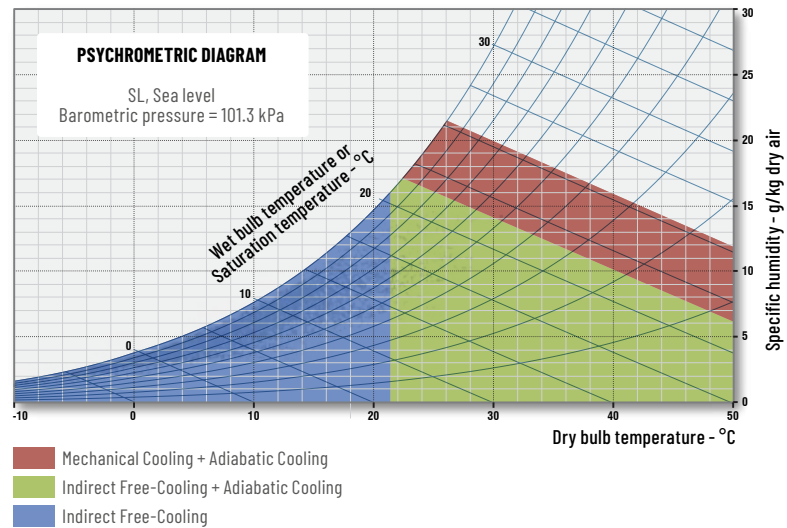
Pump adjustment logic, of the electronic and modulating type, makes it possible to **optimize air saturation** and at the same time Water Usage Effectiveness (WUE) and energy consumption. The particular configuration of the hydraulic circuit and the algorithms used for its management guarantee **the necessary replenishment of water in the system** to avoid high salt concentrations and **prevent water from stagnating in the collection tank**, with the risk of the spread of legionellosis.

$$WUE = \frac{\text{Annual Water Usage}}{\text{IT Equipment Energy}} [l / kWh]$$

DESIGNED FOR INSTALLATION ON ROOF OR ON THE WALL OF THE DATA CENTER.



Example of use for a 1 MW Data Center (Redundancy N+1) in Amsterdam at 36°C -25%; Air temp. 24°C; Max air temp. in 26°C



DATABATIC		0060	0100	0200	0300
Air temperature 36°C - Relative humidity 25% / Supply air temperature 24°C/ SHR = 1 / Outdoor air temperature 35°C - Relative humidity 30%					
Minimum cooling capacity	kW	10	60	100	200
Maximum cooling capacity	kW	60	100	200	330
Rated air flow	m³/h	15000	27000	53000	82500
Power supply	V/ph/Hz	400/3+N/50			
Dimensions [LxHxD]	mm	2750x2650x1180	4200x2650x2250	4700x3600x2250	4700x3600x3100

Data declared with chilled water or direct expansion circuit working in top up cooling mode. | Also available with 60 Hz power supply. | The dimensions shown refer to standard models without accessories and with Free-Cooling and top up cooling execution.

